US Environmental Protection Agency
Office of Pesticide Programs

Fumigant Management Plan Template
for Methyl Bromide
(for Applications in 2011 and Later)

FUMIGANT MANAGEMENT PLAN

Certified Applicator Supervising the Fumigation		
Name and phone number:	License number and/or certificate number:	☐ Commercial applicator ☐ Private applicator
Employer name and address:		Date of completing registrant training program:

General Site Information
Application block location (e.g., county, township-range-section quadrant), address, or global positioning system (GPS) coordinates:
Name, address, and phone number of owner/operator of application block:

General Application Information		
Target application date/window:	Brand name of fumigant:	EPA Registration Number:

Tarps (check here if section is not applicable ☐)		
Brand name:	Lot #:	Thickness:
Name and phone number of contact person responsible for repairing tarps:		
Schedule for checking tarps for damage, tears, and other problems:		
Maximum time following notification of damage that the person(s) responsible for tarp repair will respond:		
Minimum time following application that tarp will be repaired:	Minimum size of damage that will be repaired:	
Other factors used to determine when tarp repair will be conducted:		
Name and phone number of contact person responsible for cutting and/or removing tarps (if other than certified applicator):	Equipment/methods used to cut tarps:	
Schedule and target dates for cutting tarps:	Schedule and target dates for removing tarps:	

Soil Conditions	
Description of soil texture and moisture in application block:	Description of method used to determine soil moisture level:

Weather Conditions

Summary of the weather forecast for the day of the application and the 48-hour period following the fumigant application including predicted wind speed, inversion conditions, and air-stagnation advisories (may attach a copy of printed forecast to FMP):

Buffer Zones

Application method:	Rate from lookup table on label (lb ai/A):	Block size from lookup table on label (acres):	Credits applied:	Buffer zone distance:
☐ Bedded ☐ Broadcast ☐ Hot gas - outdoor ☐ Hot gas - greenhouse ☐ Hand held probes			☐ high barrier film _____ % ☐ organic content _____ % ☐ clay content _____ % ☐ other: _____ % Total credits _____ %	_____ ft

List and describe areas in the buffer zone that are not under the control of owner/operator of the application block:

Personal Protective Equipment for Handlers

Handler Task	Clothing	Respirator Type, Filter Cartridge Type and Change-out Schedule	Eye Protection	Gloves	Other

Emergency Response Plan

Description of evacuation routes:

Locations of telephones:

Contact information for first responders:	Local/state/federal contacts:	Other contact information for emergencies:

Emergency procedures/responsibilities in case of an incident, equipment/tarp/seal failure, complaints or elevated air concentration levels outside buffer zone suggesting potential problems, or other emergencies).

Posting Signs - Treated Area and Buffer Zone

Name of person that is doing posting:

Location of posting signs:

Procedures for posting and sign removal:

Site Specific Response and Management ☐ Fumigation Site Monitoring or ☐Response Information for Neighbors

If **Response Information for Neighbors** has been selected, completed the following:

If buffer zone is 25-100 ft:	☐ Neighbors within 50 ft of buffer zone	☐ No neighbors within 50 ft of buffer zone
If buffer zone is 100-200 ft:	☐ Neighbors within 100 ft of buffer zone	☐ No neighbors within 100 ft of buffer zone
If buffer zone is 200-300 ft:	☐ Neighbors within 200 ft of buffer zone	☐ No neighbors within 200 ft of buffer zone
If buffer zone is > 300 ft:	☐ Neighbors within 300 ft of buffer zone	☐ No neighbors within 300 ft of buffer zone
If buffer zones overlap	☐ Neighbors within 300 ft of buffer zone	☐ No neighbors within 300 ft of buffer zone

List of residences and businesses informed (neighboring property owners):

Name, address, and phone number of person providing information:

Method used to provide information:

Notice to State Lead Tribal Agencies

If your state and/or tribal lead agency requires notice, list contacts that were notified:	Date notified:

Communication Between Applicator, Land Owner/Operator, and Other On-site Handlers

Plan for communicating to the land owner/operator and all on-site handlers (e.g., tarp cutters/removers, irrigators) requirements to comply with label including location and start/stop times of buffer zones; timing of tarp cutting/removal, and PPE:

Names and phone numbers of persons contacted:	Date contacted:

Comments/notes:

Site Map

Location of application block: _____

Map Legend

Application block
Buffer zone
Property lines
Roads
Right-of-way
Walkway, sidewalk, path
B Bus stop
WB Water body
DC State-licensed daycare facility
Sch School
NAB Nearby application block
IPC Inpatient clinic
P Prison
Well
NH Nursing home
ALF Assisted living facility

Handler Information

Handler Name, Address, and Phone Number	Employer Name, Address, and Phone Number	Tasks They are Trained and Authorized to Perform	Date of Medical Qualification to Wear a Respirator	Date of Fit Testing for Respirator	Date of PPE Training

Air Monitoring Plan

For Buffer Zone Monitoring: (check here if section is not applicable ☐)				
Name of handler performing monitoring activities	**Handler address**	**Handler phone number**	**Location of monitoring**	**Timing**

For Handlers without Respiratory Protection: (check here if section is not applicable ☐)

If sensory irritation is experienced: ☐ **Intend to cease operations** ☐ **Intend to continue operations with respiratory protection**
If intend to continue operations with respiratory protection, complete section for Handlers with Respiratory Protection below.

If intend to cease operations - Name, address, and phone number of handler to perform monitoring activities prior to operations resuming:	Monitoring equipment:

For Handlers with Respiratory Protection: (check here if section is not applicable ☐)

Representative Handler Tasks to be Monitored	**Monitoring Equipment**	**Timing**

Air Monitoring Plan for Methyl Bromide Formulation with > 80% Methyl Bromide

For Buffer Zone Monitoring: (check here if section is not applicable ☐)

Name, address, and phone number of person(s) to perform sampling:

Area or Structure to be Monitored Before Reentry is Permitted	Monitoring Equipment	Timing

For Handlers with Respiratory Protection:

Representative Handler Tasks to be Monitored	Monitoring Equipment	Timing

Methyl Bromide FMP Check List

General Site Information	
A map, aerial photo, or detailed sketch is attached to this FMP that shows each of the following with distances from the application site labeled: field location, application block dimensions, buffer zones, property lines, roads, bus stops, water bodies, wells, rights-of-ways, nearby application blocks, surrounding structures, and sites requiring ⅛ and ¼ mile buffer zones.	☐
Supervision of Handlers	
An on site certified applicator will directly supervise the handlers participating in the application starting when the fumigant is first introduced into the soil and ending after the fumigant has stopped being delivered/dispensed to the soil and the soil is sealed.	☐
After the application is complete, and before leaving the application block, the certified applicator has provided the owner/operator and handlers with written information necessary to comply with the label and procedures outlined in the FMP.	☐
Fumigant safe handling information has been provided to each handler involved in the application or confirm that each handler participating in the application has received fumigant safe handling information in the past 12 months.	☐
For all fumigation handling tasks, at least 2 WPS-trained handlers must be present.	☐
Weather Conditions	
Wind speed at the application site is a minimum of 2 mph at the start of the application or forecasted to reach at least 5 mph during the application.	☐
A shallow, compressed (low-level) temperature inversion is not forecast to persist for more than 18 consecutive hours during the 48-hour period after the application.	☐
An air-stagnation advisory is not in effect for the area where the application site is located.	☐
If air temperatures have been above 100 degrees F in any of the 3 days prior to application, then soil temperature will be measured and recorded in the post application summary report.	☐
Soil Conditions	
The soil has been properly prepared and the surface has been checked to ensure that it is free of clods that are golf ball size or larger.	☐
The area to be fumigated has been tilled to a depth of 5 to 8 inches.	☐
Field trash has been properly managed (e.g., residue from a previous crop has been worked into the soil to allow for decomposition prior to fumigation, little or no crop residue is present on the soil surface, and crop residue that is present does not interfere with the soil seal).	☐
The soil temperature at the depth of injection ≤ 90 degrees F at the beginning of the application.	☐
The soil moisture at 9 inches below the surface is sufficient (field capacity is 50 to 80 percent).	☐
Trash pulled by the shanks to the ends of the field will be covered with tarp or soil before making the turn for the next pass.	☐
Shank Applications (check here if section is not applicable ☐)	
For tarped-broadcast and -bedded applications, injection points will be at least 8 inches from the nearest final soil/air interface.	☐
For tarped-bedded applications, the injection depth will not be deeper than the lowest point of the tarp (i.e., the lowest point of the tuck).	☐
For untarped-broadcast applications, the injection points will be at least 18 inches from the nearest final soil/air interface.	☐
For broadcast untarped applications, a disc or similar equipment will be used to uniformly mix the soil to at least a depth of 3 to 4 inches to eliminate the chisel or plow traces and will following elimination of the chisel trace, the soil surface will be compacted with a cultipacker, ring roller, and roller in combination with tillage equipment.	☐
For pre-formed bed applications, the soil will be sealed by disruption of the chisel trace using press sealers, bed shapers, cultipackers, or by re-shaping (e.g., relisting, lifting, replacing) the beds immediately following injection.	☐
For beds formed at the time of application, the soil will be sealed by disrupting the chisel trace using press sealers, or bed shapers.	☐
For shanked bedded and broadcast applications, tarps will be installed immediately after fumigant is injected into the soil.	☐
Applicators have been trained and instructed not to apply or allow fumigant to drain onto the soil surface.	☐
For each injection line a check valve is located as close as possible to the final injection point, or applicators will drain/purge the line of any remaining fumigant prior to lifting injection shanks from the ground.	☐
Applicators have been trained and instructed not to lift injection shanks from the soil until the shut-off valve has been closed and the fumigant has been depressurized (passively drained) or purged (actively forced out via air compressor) from the system.	☐
Brass, carbon steel, or stainless steel fittings must be used throughout application rigs.	☐
Polyethylene tubing, polypropylene tubing, Teflon® tubing or Teflon® -lined steel braided tubing have been used for all low pressure lines, drain lines, and compressed gas or air pressure lines and is all other tubing Teflon® -lined steel braided.	☐
Application equipment has been inspected to ensure that application rigs do not contain galvanized, PVC, nylon, or aluminum pipe fittings.	☐
All rigs include a filter to remove any particulates from the fumigant, and a check valve to prevent backflow of the fumigant into the pressurizing cylinder or the compressed air system.	☐
All rigs include a flow meter or a constant pressure system with orifice plates to insure the proper amount of fumigant is applied.	☐
Applicators have been trained and instructed to ensure that positive pressure is maintained in the cylinder at not less than 200 psi during the entire time it is connected to the application rig, if a compressed gas cylinder is used. (This is not required for a compressed air system that is part of the application rig because if the compressor system fails the application rig will not be operable).	☐
Application rigs are equipped with properly functioning check valves between the compressed gas cylinder or compressed air system and the fumigant cylinder.	☐
Applicators have been trained and instructed to always pressurize the system with compressed gas or by use of a compressed air system before opening the fumigant cylinder valve.	☐

Before using a fumigation rig for the first time, or when preparing it for use after storage, applicators have been trained and instructed to: ° Check the filter, and clean or replace the filter element as required. ° Check all tubes and chisels to make sure they are free of debris and obstructions. ° Check and clean the orifice plates and screen checks, if installed. ° Pressurize the system with compressed gas or compressed air, and check all fittings, valves, and connections for leaks using soap solution.	☐
Applicators have been trained and instructed to: ° Install the fumigant cylinder, and connect and secure all tubing. Slowly open the compressed gas or compressed air valve, and increase the pressure to the desired level. Slowly open the fumigant cylinder valve, always watching for leaks. ° When the application is complete, close the fumigant cylinder valve and blow residual fumigant out of the fumigant lines into the soil using compressed gas or compressed air. At the end of the application, disconnect all fumigant cylinders from the application rig. At the end of the season, seal all tubing openings with tape to prevent the entry of insects and dirt. ° Calibrate all application equipment and ensure that all control systems must be working properly.	☐
Hot Gas Applications (check here if section is not applicable ☐)	
Tarps have been installed prior to starting the application.	☐
All delivery tubes have been placed under the tarp in such a way that they do not move during the application of methyl bromide.	☐
The fumigant will be introduced from outside of the greenhouse.	☐
All fittings, connections, and valves have been checked for leaks prior to fumigation and if cylinders are replaced during the fumigation process, the connections and valves were checked for leaks prior to continuing the job.	☐
Tree Replant (non-shank) Application (check here if section is not applicable ☐)	
For each individual tree-site, the tree stump and primary root system have been removed and the tree hole has been backfilled with soil before application.	☐
The fumigant will be injected at a depth of at least 18 inches into the soil.	☐
The wand will be cleared using nitrogen or compressed air before removing it from the soil and after the wand is cleared and removed from the soil, the injection hole will be covered with soil and tamped or the soil will be compacted over the injection hole.	☐
Pre-Plant Greenhouse Soil Applications (check here if section is not applicable ☐)	
Doors, vents, and windows to the outside are open and fans or other mechanical ventilation systems are running during the application.	☐
All leaks through which gases could enter adjacent enclosed areas are sealed.	☐
Buffer Zones	
There are no difficult to evacuate sites within ¼ (or ⅛) miles of the application block that will be occupied during the buffer zone period.	☐
There are no bus stops or other locations where persons wait for public transit within the buffer zone.	☐
There are no buildings used for storage such as sheds, barns, garages, within the buffer zone that are occupied or that share a common wall with an occupied structure.	☐
For areas in the buffer zone that are not under the control of owner/operator of the application block, written agreement has been obtained from occupants that they will voluntarily vacate the buffer zone during the entire buffer zone period.	☐
For nearby agricultural areas that are in the buffer zone the owner/operator of that property provided written agreement that they, their employees, or other persons will stay out of the buffer zone during the entire buffer zone period.	☐
For publicly owned and/or operated areas (e.g., parks, rights of way, side walks, walking paths, playgrounds, athletic fields) written permission has been given to include the public area in the buffer zone from the appropriate local and/or state officials.	☐
Buffer Zones Overlap (check here if section is not applicable ☐)	☐
A minimum of 12 hours has elapsed from the time the 1st application ends until the 2nd application begins.	☐
If a structure exists within 300 feet of the buffer zone, appropriate emergency preparedness and response procedures are followed.	☐
Certified applicator has informed handlers of the overlapping buffers and associated health protection requirements.	☐
Personal Protective Equipment for Handlers	
At least 1 air rescue device (e.g., SCBA) is on-site in case of an emergency.	☐
All of the handler's PPE has been cleaned and maintained as required by the WPS for Agricultural Pesticides.	☐
Hazard Communication	
The treated area and buffer zone have been posted in accordance with the label.	☐
Pesticide product labels and material safety data sheets are on-site and readily available for employees to review.	☐
Recordkeeping	
The owner/operator of the application block has been informed that he/she as well as the certified applicator must keep a signed copy of the site-specific FMPs and the post-application summary record for 2 years from the date of application.	☐

I have verified that this site-specific FMP reflects current site conditions and product label directions before beginning the fumigation.

_____ _____

Signature of certified applicator supervising the fumigation **Date**

Post-Application Summary

(Only Fill in Block if Information is Different from the FMP.)

General Application Information		
Application date and time:	Application rate:	Size of application block:

Weather Conditions

Summary of the weather on the day of the application:

Summary of the weather during the 48-hour period following the fumigant application:

Soil Conditions (check here if section is not applicable ☐)

Soil temperature if air temperatures were above 100 degrees F in any of the 3 days prior to the application:

Tarp Damage and Repair (check here if section is not applicable ☐)

Location and size of tarp damage:

Description of tarp/tarp seal/tarp equipment failure:

Date and time of tarp repair:

Additional comments or other deviations from FMP (if applicable):

Tarp Removal (check here if section is not applicable ☐)

Description of tarp removal (if different than in the FMP):

Date tarps were cut:	Date tarps were removed:

Complaints (check here if section is not applicable ☐)

Person filing complaint: ☐ On-site handler ☐ Person off-site	If off-site person, name, address, and phone number of person filing complaints:

Description of control measures or emergency procedures followed after complaint:

Additional comments:

Description of Incidents (check here if section is not applicable ☐)	
Description of incident, equipment failure, or other emergency:	Date and time:
Description of emergency procedures followed:	
Additional comments:	

Elevated Air Concentration Levels (check here if section is not applicable ☐)		
☐ On-site ☐ Outside buffer zone	Location of elevated air concentration levels:	Date and time:
Description of elevated air concentration levels: (provide air monitoring results on next page)		
Description of control measures or emergency procedures followed:		
Description of deviations from FMP (if applicable):		

Posting Signs – Treated Area and Buffer Zone
Date of sign removal:
Description of deviations from FMP (if applicable):

Other
Additional comments/notes:

Air Monitoring Results

When Respiratory Protection is Not in Use – Sensory Irritation Experienced (check here if section is not applicable ☐)				
Date and Time	**Handler Task/Activity**	**Handler Location Where Irritation Was Observed**	**Resulting Action**	**Comments**
			☐ Cease operations ☐ Respiratory protection	
			☐ Cease operations ☐ Respiratory protection	
			☐ Cease operations ☐ Respiratory protection	
			☐ Cease operations ☐ Respiratory protection	
			☐ Cease operations ☐ Respiratory protection	

When Respiratory Protection is in Use – Direct Read Instrument Air Monitoring (check here if section is not applicable ☐)							
Sample Type	**Sample Number**	**Sample Date/Time**	**Handler Task/Activity (not applicable for structural monitoring)**	**Handler Location/ Structure Location**	**Air Concentration**	**Sampling Method**	**Comments (e.g., sensory irritation experienced while wearing respirator)**
☐Area ☐Breathing Zone ☐Structure							
☐Area ☐Breathing Zone ☐Structure							
☐Area ☐Breathing Zone ☐Structure							
☐Area ☐Breathing Zone ☐Structure							
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☐Area ☐Breathing Zone ☐Structure							
☐Area ☐Breathing Zone ☐Structure							

I have verified that this post application summary reflects the actual site conditions during the fumigation and an accurate description of deviations from the FMP (if applicable).

____ ______________________________

Signature of certified applicator supervising the fumigation **Date**